

## Using Speech Generating Devices to Increase Communication, Literacy and Interaction Skills of Individuals with Autism Spectrum Disorder

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## Autism Spectrum Disorder 3 Core Deficits

- Qualitative Impairment in Communication
- Qualitative Impairment in Social Interaction
- Restricted, Repetitive, Stereotyped Patterns of Behavior, Interests, and Activities




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## Dawson and Osterling (1997)

“Early intervention with emphasis on speech, language, and communication, as well as on social and play skills development, is perhaps more important for individuals with autism than for children with any other disability.”




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## Case Study - History



- Receptive Language higher than Expressive Language
- Inappropriate refusal skills: hit, kick, bite, spit, cry
- Hyperlexia - loved alphabet, but not meaningful nor functional
  - preschool: auditory input - 6 hr/day - visual schedule systems using alphabet as motivator
  - Kindergarten: Applied Verbal Behavior (AVB) methodology
  - 1st Grade: Communication Device

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## Case Study-History



- Diagnosed ASD - age 3 yrs.
- Receptive Language higher than Expressive Language
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## WHAT THE RESEARCH SAYS:



- AAC applications common for children with ASD, including use of speech generating devices (SGDs), have limited empirical support.
- Strong need for more data-based information on effects of SGDs on language acquisition, replacement of challenging behaviors, participation of children with ASD (Wendt, Schlosser, Lloyd, 2005).
- Literature sparse on use of speech generating devices (SGDs) with children with autism spectrum disorder (ASD).

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## SPEECH GENERATING DEVICE (SGD) FOR STUDENT



- Assessment based on Beukelman and Mirenda's participation model
  - Assess potential to utilize AAC systems or devices
    - ≍ Operational requirements
    - ≍ Individual and family preferences
    - ≍ Attitudes of other communication partners
    - ≍ Funding
- The purpose of an AAC intervention is to facilitate meaningful **communication** and **participation** in daily life activities.

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## WHAT WE KNEW ABOUT STUDENT



- Had communicative intent, desire to communicate.
- Had a clear gap between receptive and expressive language skills.
- Made minimal progress in traditional approaches used with children with ASD.
- Had negative behaviors and difficulty modulating sensory information.

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## STUDENT STRENGTHS



- Demonstrated strong visual perceptual skills
- Demonstrated strong matching skills
- Responded positively to voice output
- Demonstrated ability to use abstract and concrete symbols to encode language concepts
- Demonstrated ability to generate novel utterances
- SGD recommended:  
Vantage II from Prentke Romich Company with the vocabulary

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## COMMUNICATION SUCCESS



- Success positively supported and reinforced others
- Used vocabulary in device to generate novel utterances
- Imitated voice output in conjunction with accessing messages in SGD
- Operated device independently
- Independently navigated to desired vocabulary
- Used 'function keys'

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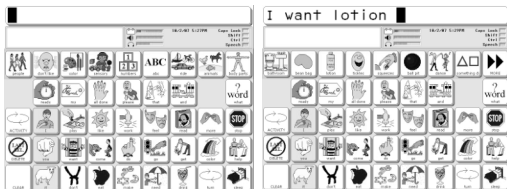
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## OVERLAYS




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## PARTICIPATION SUCCESSSES



- Used vocabulary in device to initiate communication.
- Used vocabulary in device to initiate and maintain social interactions.
- Used vocabulary in the device to request sensory needs.

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## LITERACY SUCCESSES



- Increased interest in books.
- Used vocabulary in device to read aloud.
- Used vocabulary in device to access literacy software (i.e., Classroom Suite activities).

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## POSITIVE BEHAVIORAL CHANGES



- Decreased scratching, pinching
- Decreased anxiety
- Increased requests
- Increased comprehension
- Increased compliance

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## PRAXIS



The learned ability  
“to plan”  
and  
“to carry out sequences of  
coordinated movements”  
in order to achieve an objective

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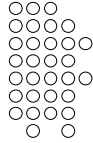
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# VIDEO

HIGHLY MOTIVATING  
ENVIRONMENT:  
INCORPORATING SPEECH  
GENERATING DEVICE DURING  
MOTOR THERAPY



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## USE OF SGD TO INCREASE LITERACY SKILLS

- Improved correlation between letters and words and written language
- Improved orientation of books, and use of SGD to fill in the blanks or add to text
- Emerging comprehension skills with use of SGD to answer "WH" questions
- Responding to computer reading program prompts with SGD



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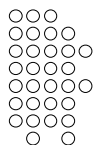
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# VIDEO



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## USE OF SGD TO INCREASE NUMERACY AND CATEGORIZATION SKILLS



- Increased accuracy in identifying numbers and quantities
- Increased engagement in answering "how many" or "show me \_\_\_\_" type questions
- Improved identification of and participation in calendar concepts
- Increased accuracy in responses regarding details in patterns and "what's next" for counting and sequencing

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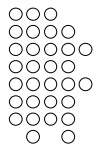
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## VIDEO



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